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FIG. 3 shows moving out process along a curved path; and

FIG. 4 shows a top view of a partial region of a door with an arrangement for locking and unlocking in a second construction in the moved-out state.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In FIGS. 1, 2a and 2b, a door 2 with an arrangement for locking and unlocking, which is situated between walls 3, 4, is fitted in a container 1. The arrangement substantially comprises two plates 5, 6 which have, at their outwardly directed sides, locking elements 7, 8 and 9, 10 in the form of projections. The plates 5 and 6 which lie parallel to the walls 3, 4 share a common drive acting in the locking and unlocking direction for displacing elements 11, 12 in the form of connecting rods, the plates 5, 6 being fixed in the moved-in end position and in the moved-out end position (see FIGS. 2a and 2c) by means of these displacing elements when the latter are displaced. Of the shared drive, only a rotatable disk 13 is shown in FIG. 1. The displacing elements 11 and 12 are rotatably fitted by one end in each instance to the disk 13 so as to lie outside the axis. The other end is rotatably fitted to a plate 5 and 6, respectively. Circular grooves 14, 15 are worked into the disk 13. Pins, not shown, which project out of a rotating disk engage in the grooves 14, 15 in order to rotate the disk 13. A motor serving to drive the rotating disk is arranged outside of the container 1 and door 2. A signal transmitter, also not shown, at the rotating disk for detecting the two end positions ensures reliable operation of the arrangement, since the rest of its component parts are connected with one another.

As is shown in FIGS. 2a and 2b in conjunction with FIG. 1, every locking element 7, 8, 9 and 10 or the regions of the plates 5 and 6 in which the locking elements 7, 8, 9 and 10 are provided is connected with the outwardly directed wall 3 of the door 2 by couplers 16, 17, 18, 19, 20, 21, 22 and 23 which are supported in parallelogram construction at the locking element 7, 8, 9 and 10, respectively, and at the wall 3 so as to be rotatable about axes X at right angles to the locking and unlocking direction. For the sake of simplicity, only one of the axes X is shown. Further, cut out portions 24, 25, 26, 27, 28, 29, 30 and 31 which assist in the locking function are provided in the region of the fastenings of the couplers 16, 17, 18, 19, 20, 21, 22 and 23, at least in the plates 5 and 6.

Recesses 34 which leave open sufficient space for the movement of the locking elements 7, 8, 9 and 10 during the locking and unlocking process are worked into the container walls 32 and 33 in the region of the door 2 which is fitted therein. The locking elements 7, 8, 9 and 10 are supported on contact surfaces 35 in the locked state and accordingly in the closed state of the container 1 (FIG. 2b).

The container 1 is locked by the described arrangement in the following manner. When the disk 13 is rotated, in that it is driven by the motor via the pins engaging in the grooves 14, 15, the displacing elements 11 and 12 which are fastened in such a way that they lie outside the axis are moved outward so that the plates 5 and 6 are accordingly also moved out. However, as will be seen from FIG. 3, they follow a curved path Y rather than a linear path. As a result of the sufficiently high movement space, the locking elements 7, 8, 9 and 10 can penetrate without hindrance into the recesses 34 until contacting the contact surfaces 35. The locking elements 7, 8, 9 and 10 are pressed against the contact surfaces 35 under tension and subsequently fixed by

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means of a slight residual rotating movement of the disk 13 beyond the dead center of the displacing elements 11 and 12. Just as in the case of the penetrating movement until contact is made, there is also essentially no frictional action involved in this contact pressure accompanied by tension.

A seal can, of course, be provided between the container 1 and the door 2 for the purpose of a tightly fitting connection. It is also advantageous when the contact surfaces 35 project beyond the wall 3 slightly when the door 2 is inserted. Unlocking is effected in the reverse sequence, wherein the locking elements 7, 8, 9 and 10 are also fixed in the unlocked end position.

The cut off portion of the arrangement which is designed identically in a mirror-inverted manner is dispensed with in the construction according to FIG. 4. A door 37 which likewise contains the locking and unlocking arrangement between walls is fitted in a container 36. Two plates 38, 39 which are arranged adjacent to one another and which lie parallel to the walls of the door 37 have, at their outwardly directed sides, locking elements 40, 41 in the form of projections. A shared drive acting in the locking and unlocking direction for displacing elements 42, 43 in the form of connecting rods is provided for displacing the plates 38, 39 relative to one another and to fix them in the end positions.

Of the shared drive, only a rotatable disk 44 is shown. The displacing elements 42 and 43 are rotatably fitted by one end in each instance to the disk 44 so as to lie outside the axis. They are fastened by their other end to a plate 38 and 39, respectively. Circular grooves 45, 46 are worked into the disk 44. Pins, not shown, which project out of a rotating disk engage in the grooves 45, 46 in order to rotate the disk 44. A motor serving to drive the rotating disk is arranged outside of the container 36 and door 37. A signal transmitter, also not shown, at the rotating disk serves to detect the two end positions.

In contrast to the first embodiment according to FIG. 1 and for reasons of stability, each locking element 40, 41 and each of the plates 38, 39 is provided with a pair of couplers 47, 48, 49, 50 in parallelogram construction for connecting with the outwardly directed wall of the door 37. In other respects, the couplers 47, 48, 49, 50 and their fastening are identical to the first embodiment. This also applies to the cut out portions which are incorporated at least in the plates 38, 39 and which assist in locking. Only one cut out portion, designated by 51, is shown.

Recesses 52 with corresponding contact surfaces and sufficient space for the movement of the locking elements 40, 41 are worked into the walls of the container 36 in the region of the inserted door 37.

Of course, it is possible to select a drive other than that described in this construction for producing the inward and outward movement, or to design the couplers of the locking elements differently, or to modify the quantity of coupled locking elements.

While the foregoing description and drawings represent the preferred embodiments of the present invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the true spirit and scope of the present invention.

What is claimed is:

1. An arrangement including in combination, a container for transporting wafer-shaped objects having container walls; a container door fitted in said container and comprising two walls, spaced apart from and parallel to each other; recesses worked into the container walls in the region of said container door which is fitted therein;

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means for locking and unlocking said container door comprising locking elements provided within said container door between said two parallel walls and being displaceable into a moved-in end position and into a moved-out end position and, when moving out, penetrate into said recesses within the container walls,

every locking element being in the form of a projection from a plate which is directed parallel to the outwardly directed wall of said container door, wherein all plates share a common drive in form of a rotatable disk driven by a motor and acting in the locking and unlocking direction for connecting rods provided for displacing the plates, the plates being fixed in the moved-in end position and in the moved-out end position by said connecting rods;

means for providing that the penetration of the locking elements into said recesses is effected along a curved path as a result of a movement of each locking element into a corresponding recess as well as in a direction normal thereto,

said means for providing a curved path further comprising structure to maintain and move every plate parallel to an outwardly directed wall of said two parallel walls of the container door by means of couplers, said couplers for every plate being parallel to each other and rotat-

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ably connected to said plate and also to said outwardly directed wall so that, as a result of the couplers, there is a predetermined distance between every plate and said outwardly directed wall in the moved-in state, which distance decreases during the outward movement until the locking element comes into contact with a contact surface in the recess against which the locking element is pressed under tension in its moved-out end position.

2. The arrangement according to claim 1, wherein the locking elements are adjacent to one another.

3. The arrangement according to claim 2, wherein one end of each connecting rod is rotatably fitted to a plate, the other end being rotatably fitted opposite thereto at a disk so as to lie outside an axis thereof, and wherein the plates are fixed in the moved-out end position by rotating the disk beyond a dead center position.

4. The arrangement according to claim 1, wherein one end of each connecting rod is rotatably fitted to a plate, the other end being rotatably fitted opposite thereto at a disk so as to lie outside an axis thereof, and wherein the plates are fixed in the moved-out end position by rotating the disk beyond a dead center position.

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